



CUSTOMER RELEASE NOTES

RS Switch Router Boot PROM Version 2.0.1.3 January 2002

INTRODUCTION:

This document provides specific information for Boot PROM version 2.0.1.3 for the RS Switch Router family of products.

It is recommended that one thoroughly review this release note prior to the installation or upgrade of this product.

FIRMWARE SPECIFICATION:

Image Name	Version No.	Type	Release Date
p2013cm2	2.0.1.3	Customer Release	Jan 2003
p2013r2k	2.0.1.3	Customer Release	Jan 2003

HARDWARE COMPATIBILITY:

Visit the Riverstone Networks Support page to view the most current hardware compatibility matrix.

<http://www.riverstonenet.com/support/docs.shtml>

****This PROM image is compatible with any combination of memory supported by the controller module.***

BOOT PROM COMPATIBILITY:

For the **RS 2000**, the following table lists the PROM image and firmware image compatibility.

RS Part Number	Minimum Boot PROM Image	Current Boot PROM Image	Minimum RS Firmware Image
G20-B128	p1109s2k	p2011r2k	3.1.0.0

For the **RS 2100**, the following table lists the PROM image and firmware image compatibility.

RS Part Number	Minimum Boot PROM Image	Current Boot PROM Image	Minimum RS Firmware Image
G21-B	p1109s2k	p2011r2k	2.2.0.1

For the **IA 1100** and **IA 1200**, the following table lists the PROM image and firmware image compatibility.

RS Part Number	Minimum Boot PROM Image	Current Boot PROM Image	Minimum RS Firmware Image
IA 1000 and 1200	p1109s2k	p2011r2k	3.1.0.0

Note: IA 1000 and 1200 require Boot PROM 1.1.0.9 and Firmware 3.1.0.0 and above.

For the **RS 8000**, **8600**, **32000** and **38000**, the following table lists the Control Module, Boot PROM image, and firmware image compatibility.



CUSTOMER RELEASE NOTES

Control Module	Minimum Boot PROM Image	Current Boot PROM Image	Minimum RS Firmware Image
G8M-CM2-128	Prom-1.0.0.0	p2011cm2	1.0.0.0
G8M-CM3-256	p2000cm2	p2011cm2	6.0.0.0
R32-CM3-256	p2000cm2	p2011cm2	6.0.0.0
R38-CM4-256	p2011cm2	p2011cm2	7.0.0.0

SUPPORTED FUNCTIONALITY:

The Boot PROM software image is loaded when the RS is powered on. Its function is to load the system software image file.

INSTALLATION AND CONFIGURATION NOTES:

Upgrading the Boot PROM to version 2.0.1.1

To upgrade the RS Switch Router's Boot PROM to version 2.0.1.3:

1. Enter Enable mode on the RS Switch Router using the **enable** command.

```
rs> enable
```

2. Verify the current Boot PROM version loaded on the RS. Enter the **system show version** command.

```
rs# system show version
```

```
Software Version      :      8.0.3.0
Copyright             :      Copyright © 1999 Riverstone Networks.
Image Information      :      Version 8.0.3.0 built on Fri Nov 12 01:16:15 2001
Image Boot Location    :      tftp://10.250.89.88/rs8030
Boot Prom Version      :      prom-1.0.0.0
```

3. Verify the new Boot PROM image is in the tftp directory of the tftp server used to load the RS Switch Router.
4. The RS 1000, 2000, and 3000, Control Modules, and the RS 8000, 8600, 32000 and 38000 Control Modules use different PROM images. Verify you have the correct PROM image for your system.
5. Use the **system promimage upgrade** command to copy and upgrade the Boot PROM image.

```
rs# system promimage upgrade 10.50.89.88 p2013cm2
```

```
Downloading image "prom-2.0.1.3" from host "10.250.89.88"
to local image "prom-2.0.1.3" (takes a few minutes)
Kernel: 100%
Image checksum validated.
Image added.
```

6. Reboot the RS and enter the **system show version** command to verify the upgrade.



CUSTOMER RELEASE NOTES

Boot Flash Error

If the following message is displayed on the RS console while trying to modify the RS configuration:

%SYS-E-VFSBADINUSECNT, WriteConfig: open: invalid in-use count

The boot-flash is corrupt and must be reformatted. To reformat the boot flash, perform the following:

1. Make a back up copy of the RS's configuration file. Information stored on the Boot PROM is lost when it is reformatted.
2. Enter the system Boot PROM mode, either by rebooting or powering off then on. Upon initialization, interrupt the normal boot sequence by pressing the Escape key when prompted. Typically, the RS waits two seconds for user interruption before entering the normal boot sequence.
3. After pressing the Escape key, an rs-boot prompt is displayed. Enter the following commands:

```
rs-boot> umount  
rs-boot> erasevfs  
rs-boot> mount -l
```
4. Upon completing these steps, the internal-flash is initialized. Type **reboot** to regain normal operations.

FIRMWARE CHANGES AND ENHANCEMENTS:

New Features in Boot PROM Version 2.0.1.3

- BOOT BACKUP FILE
- BACKUP SYSTEM IMAGE
- BACKUP CONFIGURATION FILE
- Bootprom Escape Character

Boot Backup File

The RS can boot from the **PC flash card**, from a **TFTP server**, or from a **BootP/TFTP server**. When you set the RS to boot from a TFTP server, you can specify both a primary and a backup TFTP server. Use the system set bootprom command in Enable mode to set the IP address for both servers. When you reboot the RS, it first tries to boot from the primary TFTP server. If that server is unavailable, the RS automatically tries to boot from the backup TFTP server.

The following example specifies the IP addresses of the primary and backup TFTP servers.

```
rs# system set bootprom tftp-server 192.128.172.5 backup-tftp-server 192.128.178.5
```

To view the boot PROM parameters and verify the IP addresses of the TFTP servers, use the system show bootprom command as shown in the following example

```
rs# system show bootprom  
Boot Prom's parameters for TFTP network booting:  
Network address      : 192.128.172.30  
Network mask         : 255.255.255.0  
TFTP server          : 192.128.172.5  
Gateway to reach TFTP server : 0.0.0.0  
Backup TFTP server    : 192.128.178.5  
Primary bootsource    : /ros8030  
Backup bootsource     : /backup/ros8030
```



CUSTOMER RELEASE NOTES

The following example shows the messages displayed on the console as the RS boots up. It tries to boot from the primary TFTP server (192.128.172.5). When it is unable to do so, it boots from the backup TFTP server (192.128.178.5).

Autoboot in 2 seconds - press RETURN to abort and enter prom

```
primary source: tftp://192.128.172.5/backup/ros8030
couldn't open 192.128.172.5:backup/ros8030 for reading
  Kernel not found or lost in transmission
secondary source: tftp://192.128.178.5/backup/ros8030
File: version (874 bytes)
Build location: host 'cmbuild0' by 'mhaydt'

Version: 8.0.3.0
```

For even greater redundancy, you can specify a primary and backup system image. Use the system set bootprom command in Enable mode to specify both the primary and secondary system image files. When you reboot the RS, it tries to boot the primary system image from the primary and backup TFTP servers. If that fails, the RS tries to boot the backup system image from the primary and backup TFTP servers.

The following example specifies the primary and backup system images.

```
rs# system set bootprom primary-image rs8030
rs# system set bootprom backup-image /backup/ros8030
```

Use the system show bootprom command to display your settings:

```
rs# system show bootprom
Boot Prom's parameters for TFTP network booting:
Network address       : 192.128.172.30
Network mask         : 255.255.255.0
TFTP server          : 192.128.123.3
Gateway to reach TFTP server : 0.0.0.0
Backup TFTP server    : 192.128.178.5
Primary bootsource    : /rs8030
Backup bootsource     : /backup/ros8030
```

The following example shows the messages the RS displays on the console as it tries to boot the system image software.

```
Autoboot in 2 seconds - press RETURN to abort and enter prom
primary source: tftp://192.128.123.3/rs8030
couldn't open 192.128.123.3:rs8030 for reading
  Kernel not found or lost in transmission
secondary source: tftp://192.128.178.5/rs8030
couldn't open 192.128.178.5:rs8030 for reading
  Kernel not found or lost in transmission
primary source: tftp://192.128.123.3/backup/ros8030
couldn't open 192.128.123.3:backup/ros8030 for reading
  Kernel not found or lost in transmission
secondary source: tftp://192.128.178.5/backup/ros8030
File: version (874 bytes)
Build location: host 'cmbuild0' by 'mhaydt'

Version: 8.0.3.0
```

As shown in the example, the RS tried to boot the primary system image (rs8030) from the primary TFTP server (192.128.123.3), and then from the backup TFTP server (192.128.178.5). When the RS was unable to boot the primary image, it tried to boot the backup system image (qa/ros8030) from the primary TFTP server, and then from the backup TFTP server.

Note: If the RS has a backup Control Module (CM), changes made to the primary CM using the **system set bootprom** command are not automatically propagated to the backup CM. You must specify this command on the backup CM as well.



CUSTOMER RELEASE NOTES

Backup System Image

Use the system image choose command to specify the system software image on the PC card that the RS will use the next time you reboot the system. Use the **system image secondary-choose** command to specify a secondary system image. When the RS boots, it will try to use the primary software image on the PC card. If for some reason the RS cannot use that file, then it automatically uses the secondary software image file. The following example specifies the secondary image in the backup Control Module:

```
rs# system image secondary-choose rs90c backup-cm
```

Note: If the RS has a backup CM, changes made to the primary CM using the **system image** command are not automatically propagated to the backup CM. You must specify this command on the backup CM as well.

Backup Configuration File

When the RS boots up, it uses the startup configuration file to configure itself. Use the system set sys-config command in Enable mode to specify both a primary and secondary configuration file. When the RS boots, it will try to use the primary configuration file. If for some reason the RS cannot use the file, then it automatically uses the secondary configuration file. Following is an example:

```
rs# system set sys-config primary config_a secondary config_b
```

Bootprom Escape Character

When you boot the RS, you can interrupt the normal boot process and enter Boot mode. By default, you would do this by pressing the "Esc" key. You can change this default and use a character instead of the "ESC" key to interrupt the boot process. Use the **system set bootprom** command in Enable mode to specify the character, then save the command to the startup configuration file. In the following example, the character "x" is specified.

```
rs# system set bootprom esc-char x
```

Therefore, when the RS reboots and the character "x" is typed, the RS will interrupt its boot process and enter Boot mode. To change back to the default, enter the system set bootprom command with the keyword **ESC** as shown in the following example:

```
rs# system set bootprom esc-char ESC
```



CUSTOMER RELEASE NOTES

Upgrading the PCMCIA flash card file system to VFS2

The current default file system on the PCMCIA, known as Virtual File System 2 (VFS2), will work with the PROM image 1.1.0.8 and above. If you are upgrading from a boot prom with revision less than 1.1.0.8, then it will have Virtual File System 1 (VFS1). We recommend that the VFS1 be upgraded to VFS2. Once the boot PROM image is upgraded to version 1.1.0.8 and above, the existing Virtual File system may be used or it may be upgraded to Virtual File System 2 (VFS2).

A PCMCIA card with VFS1 takes about 10 - 20 minutes to complete an image add or delete operation. With the new VFS2, this operation takes only a fraction of the time. However, because of the new block allocation mechanism in VFS2, firmware 3.0.0.2 and below will not be able to access a PCMCIA card formatted in VFS2. Please see the table below for firmware and file system compatibility.

To upgrade the Boot PROM file system to VFS2:

1. Enter the system Boot PROM mode either by rebooting or powering off then on. Upon initialization, interrupt the normal boot sequence by pressing the Escape key when prompted. Typically, the RS waits two seconds for user interruption before entering the normal boot sequence.
2. After pressing the Escape key, a rs-boot prompt is displayed. Enter the following command:

```
rs-boot> pcmakeversion2
```

3. This converts the old VFS1 file system to the new VFS2 file system on the PCMCIA card. All data on the PCMCIA card is untouched.
4. If desired everything on your PCMCIA card may be erased before converting the file system to VFS2. If the PCMCIA card is corrupt, enter the following commands to format your PCMCIA card:

```
rs-boot> pcumount  
rs-boot> erasepcvfs  
rs-boot> pcmount -i
```

The first command unmounts the PCMCIA card and the second command erases everything on the PCMCIA. The third command initializes the PCMCIA to VFS2 before mounting the PCMCIA card.

NOTE: The default file system for Boot PROM 1.1.0.8 and above is VFS2, and the **pcmount -i** command initializes the PCMCIA card to the new Virtual File System.

5. If the original VFS1 file system is desired, enter the following command:

```
rs-boot> pcmakeversion1
```

NOTE: Both **pcmakeversion1** and **pcmakeversion2** commands will NOT erase the data contained on the PCMCIA card.

6. To verify the current VFS version on the PCMCIA card:

```
rs-boot> pcshowversion
```

7. Upon completing these steps, the VFS is initialized. Type **reboot** to regain normal operations.



CUSTOMER RELEASE NOTES

FIRMWARE, BOOT PROM, AND FILE SYSTEM COMPATIBILITY:

Firmware Version	Prom 1.1.0.7 and below with VFS1	Prom 1.1.0.8 and above with VFS1	Prom 1.1.0.8 and above with VFS2
3.0.0.2 and below	Yes	Yes	No
3.0.1.0 and above	Yes	Yes	Yes

NOTE: Boot Prom 1.1.0.7 and below do not support VFS2.

KNOWN RESTRICTIONS AND LIMITATIONS:

None

COMPLIANCE SUPPORT:

Compliance Level	Compliant
Year 2000	YES

Known Anomalies: None.

Note: Date and time information is provided by the device, and not by the Boot PROM.

IETF STANDARDS MIB SUPPORT:

MIB support is supplied by and dependent upon the firmware image on the device within which this Boot PROM resides.

RIVERSTONE NETWORK PRIVATE ENTERPRISE MIB SUPPORT:

MIB support is supplied by and dependent upon the firmware image on the device within which this Boot PROM resides.

Riverstone Networks Private Enterprise MIBs are available in ASN.1 format from the Riverstone Network web site at: <http://www.riverstonenet.com/support/>. Indexed MIB documentation is also available.

SNMP TRAP SUPPORT:

SNMP trap support is supplied by and dependent upon the firmware image on the device within which this Boot PROM resides.

GLOBAL SUPPORT:

By Web: <http://www.riverstonenet.com/support>

For information regarding the latest firmware available, recent release note revisions, or if you require additional assistance, please visit the Riverstone Networks Support Web site.